

## **ABSTRACT**

A nitrogen-free anti-reflective layer for use in semiconductor photolithography is fabricated in a chemical vapor deposition process, optionally plasma-enhanced, using a gaseous mixture of carbon, silicon, and oxygen sources. By varying the process parameters, acceptable values of the refractive index  $n$  and extinction coefficient  $k$  can be obtained. The nitrogen-free anti-reflective layer produced by this technique eliminates the mushrooming and footing problems found with conventional anti-reflective layers.